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CLAIMS:

A method of segment-based motion estimation to determine motion vectors 1. for respective segments (S11-S14) of a segmented image (100), the method comprising: - creating sets of candidate motion vectors for the respective segments (S11-

S14);

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- dividing the segmented image (100) into a grid of blocks (b11-b88) of pixels;

- determining for the blocks (b11-b88) of pixels which of the candidate motion vectors belong to the blocks (b11-b88), on basis of the segments (S11-S14) and the locations of the blocks (b11-b88) within the segmented image (100);

- computing partial match errors for the blocks (b11-b88) on basis of the determined candidate motion vectors and on basis of pixel values of a further image (102);

- combining the partial match errors into a number of match errors per segment;
- selecting for each of the sets of candidate motion vectors respective candidate motion vectors on basis of the match errors; and
- assigning the selected candidate motion vectors as the motion vectors for the respective segments (S11-S14).
- 2. A method of segment-based motion estimation as claimed in claim 1, further comprising:
- splitting each block of a portion of the blocks (b11-b88) into respective groups of pixels on basis of the segments (S11-S14) and the locations of the blocks (b11-b88) within the segmented image (100), each block of the portion of the blocks (b11-b88) overlapping with multiple segments (S11-S14);
 - determining for the groups of pixels which of the candidate motion vectors belong to the groups of pixels, on basis of the segments (S11-S14) and the locations of the groups of pixels within the segmented image (100);
 - computing further partial match errors for the groups of pixels on basis of the determined candidate motion vectors and on basis of the pixel values of the further image (102); and

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- combining the partial match errors and the further partial match errors into a number of match errors per segment.

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- 3. A method of segment-based motion estimation as claimed in claim 1, whereby determining for the blocks (b11-b88) of pixels which of the candidate motion vectors belong to the blocks (b11-b88), is based on the amount of overlap between segments (S11-S14) and the blocks (b11-b88) within the segmented image (100).
- 4. A method of segment-based motion estimation as claimed in claim 1, whereby
 10 a first one of the partial match errors corresponds with the sum of differences between pixel
 values of the segmented image (100) and further pixel values of the further image (102).
 - 5. A method of segment-based motion estimation as claimed in claim 1, whereby a first one of the blocks (b11-b88) of pixels comprises 8*8 or 16*16 pixels.
 - 6. A method of segment-based motion estimation as claimed in claim 1, further comprising:
 - determining a final motion vector on basis of a first one of the motion vectors, being assigned to a first one of the segments, and on basis of a particular motion vector, being assigned to a further segment of a further segmented image, the segmented image and the further segmented image being both part of a single extended image, the first one of the segments and the further segment being both part of a single segment which extends over the segmented image and the further segmented image; and
 - assigning the final motion vector to the first one of the segments.
 - 7. A method of segment-based motion estimation as claimed in claim 6, whereby the first one of the motion vectors is assigned as the final motion vector if a first size of the first one of the segments is larger than a second size of the further segment and, whereby the particular motion vector is assigned as the final motion vector if the second size is larger than the first size.
 - 8. A motion estimation unit (300) for estimating motion vectors for respective segments (S11-S14) of a segmented image (100), the motion estimation unit comprising:

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- creating means (314) for creating sets of candidate motion vectors for the respective segments (S11-S14);
- dividing means (304) for dividing the segmented image (100) into a grid of blocks (b11-b88) of pixels;
- determining means (306) for determining for the blocks (b11-b88) of pixels which of the candidate motion vectors belong to the blocks (b11-b88), on basis of the segments (S11-S14) and the locations of the blocks (b11-b88) within the segmented image (100);
- computing means (308) for computing partial match errors for the blocks

 (b11-b88) on basis of the determined candidate motion vectors and on basis of pixel values of a further image (102);
 - combining means (310) for combining the partial match errors into a number of match errors per segment;
 - selecting means (312) for selecting for each of the sets of candidate motion vectors respective candidate motion vectors on basis of the match errors; and
 - assigning means for assigning the selected candidate motion vectors as the motion vectors for the respective segments (S11-S14).
 - 9. An image processing apparatus (500) comprising:

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- a segmentation unit (502) for segmenting an input image into a segmented image (100); and
 - a motion estimation unit (508) for estimating motion vectors for respective segments (S11-S14) of the segmented image (100), as claimed in claim 6.
- 25 10. An image processing apparatus (500) as claimed in claim 9, characterized in further comprising processing means being controlled (504) on basis of the motion vectors.
 - 11. An image processing apparatus (500) as claimed in claim 10, characterized in that the processing means (504) are arranged to perform video compression.
 - 12. An image processing apparatus (500) as claimed in claim 10, characterized in that the processing means (504) are arranged to perform de-interlacing.

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13. An image processing apparatus (500) as claimed in claim 10, characterized in that the processing means (504) are arranged to perform image rate conversion.

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- 14. An image processing apparatus (500) as claimed in claim 9, characterized in
- 5 that it is a TV.